

Missouri Assessment Program Spring 2003

Mathematics

Released Items

Grade 8



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5

Sara is playing a number game using the card shown below. The object of the game is to get five numbers in a row, arranged either horizontally, vertically, or diagonally.

| | | | | |
|----|----|----|----|----|
| 2 | 16 | 18 | 27 | 13 |
| 8 | 44 | 7 | 33 | 45 |
| 54 | 3 | 5 | 49 | 55 |
| 22 | 24 | 81 | 19 | 4 |
| 35 | 29 | 11 | 32 | 28 |

During the game, the following five different numbers are called out:

- a prime number
- a perfect square
- a power of 2
- a multiple of 3
- a multiple of 9 that is not a multiple of 6

Could Sara have five numbers in a row, arranged either horizontally, vertically, or diagonally? Circle the correct numbers on the card. In the box below, use mathematics to explain how you know which numbers to circle.

Go On ►

6

A recent sampling of movie ticket prices from various cities around the world was compiled into the table below.

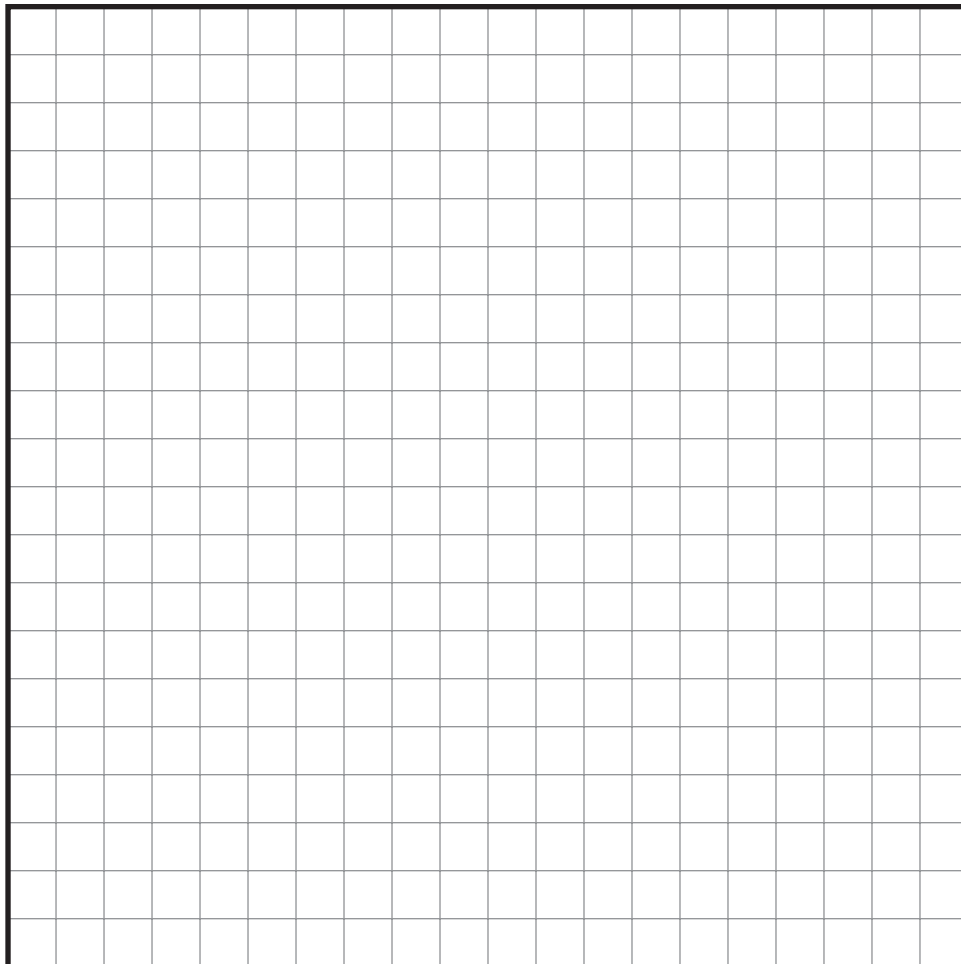
MOVIE TICKET PRICES AROUND THE WORLD

| City | Ticket Price (in U.S. dollars) |
|---------------------|-----------------------------------|
| Tokyo, Japan | 17.58 |
| Munich, Germany | 10.73 |
| Sydney, Australia | 9.53 |
| Paris, France | 9.25 |
| London, England | 9.21 |
| Hong Kong | 7.60 |
| Madrid, Spain | 5.66 |
| Toronto, Canada | 5.11 |
| Mexico City, Mexico | 2.52 |

On the grid below, construct a bar graph from the data in the table to show the prices of movie tickets in various cities around the world.

Be sure to:

- provide a title
- label the axes
- use an appropriate and consistent scale
- accurately graph the data



Go On ►

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Released Items Scoring Guide

Grade 8

Session: 1
Item No.: 5
Page No.: 7
Content Standard(s): 5 Mathematical Systems and Number Theory
Process Standard(s): 3.5

Exemplary Response:

•

OR

| | | | | |
|----|----|----|----|----|
| 2 | 16 | 18 | 27 | 13 |
| 8 | 44 | 7 | 33 | 45 |
| 54 | 3 | 5 | 49 | 55 |
| 22 | 24 | 81 | 19 | 4 |
| 35 | 29 | 11 | 32 | 28 |

| | | | | |
|----|----|----|----|----|
| 2 | 16 | 18 | 27 | 13 |
| 8 | 44 | 7 | 33 | 45 |
| 54 | 3 | 5 | 49 | 55 |
| 22 | 24 | 81 | 19 | 4 |
| 35 | 29 | 11 | 32 | 28 |

AND

- 27 $3 \times 9 = 27$, divisible by 9 but not by 6
- 33 $3 \times 11 = 33$, multiple of 3
- 49 $7 \times 7 = 49$, a perfect square
- 19 a prime number, only divisible by 1 and 19
- 32 $2^5 = 32$, a power of 2

OR

- 2 $2^1 = 2$, a power of 2
- 16 $4 \times 4 = 16$, a perfect square
- 18 $3 \times 6 = 18$, multiple of 3
- 27 $3 \times 9 = 27$, divisible by 9 but not by 6
- 13 a prime number, only divisible by 1 and 13

| | |
|-----------------------------|--|
| Session: | 1 |
| Item No.: | 5 |
| Page No.: | 7 |
| Content Standard(s): | 5 Mathematical Systems and Number Theory |
| Process Standard(s): | 3.5 |

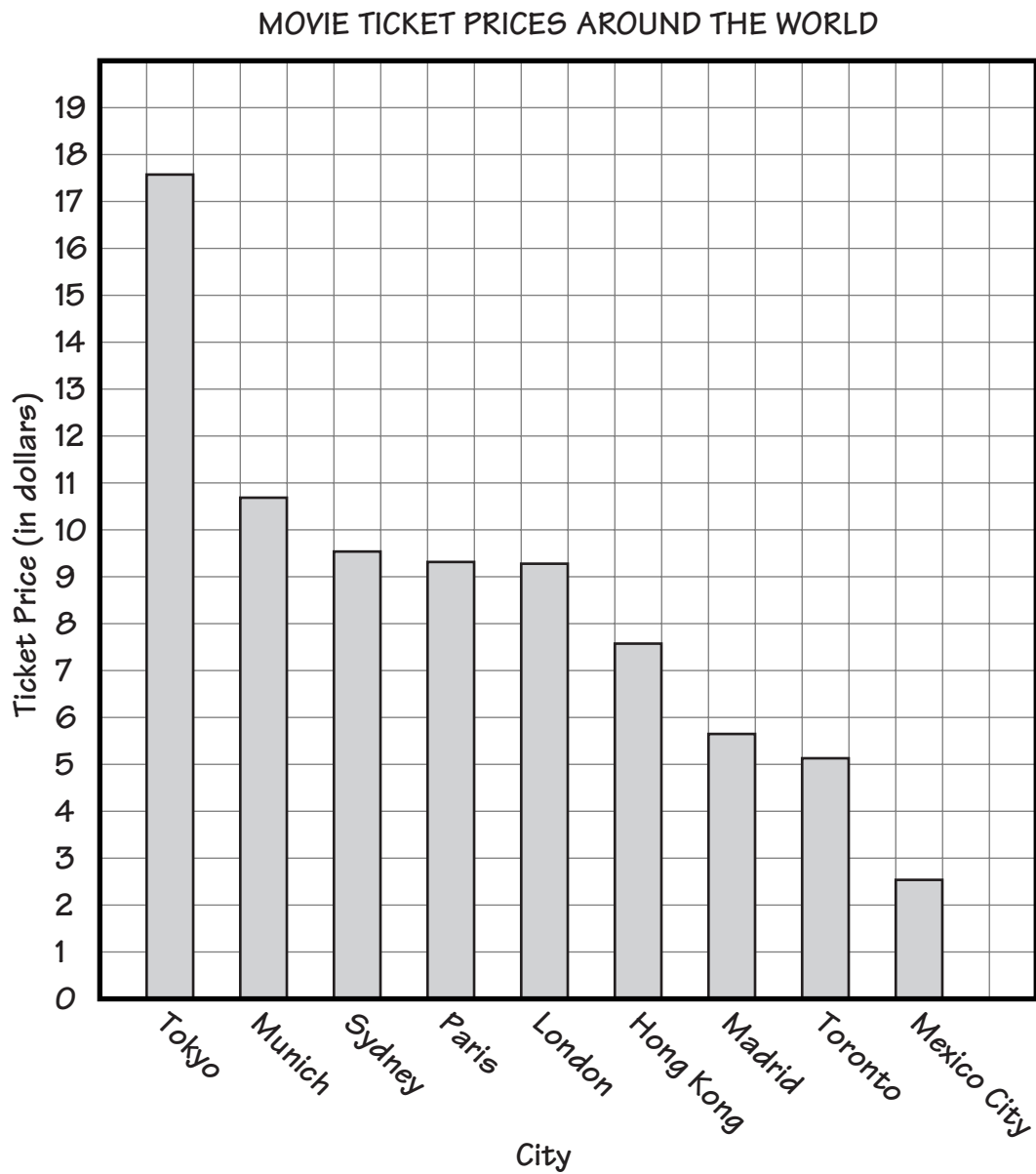
Score Points:

| | |
|----------|------------------------------|
| 2 points | Exemplary response |
| 1 point | Correct numbers circled only |
| | OR |
| | Correct explanations only |
| 0 points | Other |

Session: 1
Item No.: 6
Page No.: 8–9
Content Standard(s): 3 Data Analysis, Probability, and Statistics
Process Standard(s): 1.8

Exemplary Response:

- Correctly graphed data as shown:



Session: 1
Item No.: 6
Page No.: 8–9
Content Standard(s): 3 Data Analysis, Probability, and Statistics
Process Standard(s): 1.8

Score Points:

| | |
|----------|---|
| 2 points | Exemplary response |
| 1 point | 1–2 errors in the title, labels, scale, and/or graphing |
| 0 points | 3 or more errors |